KICKAPOO ENVIRONMENTAL OFFICE

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KICKAPOO ENVIRONMENTAL OFFICE

KIKAAPOA - He who moves about
KICKAPOO TRIBE IN KANSAS

KICKAPOO ENVIRONMENTAL OFFICE

November 2019
Volume 1, Issue 4

Down to Earth!

DOWN TO EARTH!

MESSAGE FROM THE DIRECTOR—NESTORIA WRIGHT

Thankful and Grateful for All of You

Looking at the winter season and the coming holidays, we can explore creation's dominant element at this time and understand what it represents. The more aligned we are with nature, the healthier and happier we will be. Thanksgiving indicates a time to reflect, appreciate, be grateful and thankful the many diverse, blessings, gifts and talents in our lives. Primarily, one thing that I am most appreciative and most thankful of is the remarkable, passionate and dedicated people that I have the privilege to work with everyday our counsel members, financial administration personnel, our staff, our partners, our community and most importantly those we serve.

In the last eight months, that I have been working and moving my role as Kickapoo Environmental Office Director this year has provided me the opportunity to learn new things and meet new KEO talented environmental specialists and scientists and learning from each one of them. I am very grateful that we are blessed with our dedicated, resourceful and gifted staff on board with unique gifts, talents and personality. In every turn, I have been moved by dedicated and hard work of our personnel across the department and in partnership with our community. Each day, in every aspect of our system, I see Kickapoo Tribe in Kansas employees, personnel and administrative leadership working together to make the Tribe a better place to work, live and pursue the things that bring us joy, and meaning. I am very excited and inspired to see our KEO staff working and presenting with their individual research projects, learning how to write a grant funding to sustain their environmental research project proposals to improve our KTIK environment and community. I want to thank those of you who took the time to share your research project proposals and your experience with me. Personal and professional, positive and negative your stories are an inspiration and serve to remind all of us of what really matter, the health of all the people in our community with special attention to those who are most vulnerable.

It is my great honor to be working with such dedicated resourceful staff and for loving what they do and make a positive social change to our community. As we pause this month to reflect and give thanks, I want to give thanks to those whose commitment to serve finds them serving others as well as those whose may not be able to celebrate thanksgiving due to personal circumstances.

Wishing you all a safe, peaceful, joyful and blessed holiday.!

Many Thanks,
Nestoria

INSIDE THIS ISSUE

DOWN TO EARTH!

AIR QUALITY UPDATE **– Andrea Jones**

Highlighting the CASTNET system:

When asked about my job and what is the difference between the air on the reservation than anywhere else, I have to bring in the CASTNET system that helps monitor the air throughout the lower Midwest region.

The next question is, What is CASTNET? To which is a very valid question. So, I will explain the CASTNET system that is located in Powhattan near the Kickapoo School.

CASTNET—Clean Air Status and Trends Network

- Is a national monitoring network established to assess trends in pollutant concentrations, atmospheric deposition, and ecological effects due to changes in air pollutant emissions. (epa.gov/castnet)

- Is a long-term, rural monitoring network used to assess the environmental results due to emission reduction programs and pollutant impacts to sensitive ecosystems and vegetation

- measures weekly ambient concentrations of gases and particles including
  - SO2, nitric acid
  - (HNO3),
  - sulfate (SO2- 4),
  - nitrate (NO3),
  - ammonium (NH+ 4),
  - chloride (Cl-),
  - and base cations, as well as hourly O3 concentrations

Currently there are 97 CASTNET sites around the United States monitoring various combinations of the above particulates. For our CASTNET site we sample for all above. Weekly I collect the sample cartridges from the tower which is called dry deposition. I collect rain water which is wet deposition (acid rain), download data from the meteorological station and every two weeks I collect the sample tube for ammonia. From all four of those collection items are sent back to the University of Wisconsin for analysis and then I am kicked out a report either quarterly or annually for others. With that collection of data, I can start putting together a story of what the particulates that come through our area are having on our health, if any affects at all.

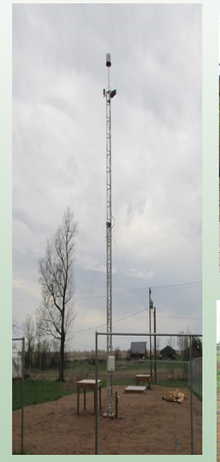
What are the benefits of this system? The operators are trained, audited and calibrate the equipment in order to remain in compliance with the EPA standards and to have complete and accurate data to use.

All CASTNET sites are partnered with the Environmental Protection Agency, the National Park Service, Bureau of Land Management and other entities including five other Native Tribes that monitors on tribal lands. The reason these sites are so significate is because until the early 2000's, no monitoring sites existed in the Midwest for pesticides, herbicides, fertilizers, emissions from coal fired power plants and other emission generating entity.

The Tribal sites monitoring are Nez Perce Tribe in Idaho, Red Lake Nation in Michigan, Santee Sioux in Nebraska, Kickapoo Tribe in Kanas, Cherokee Nation in Oklahoma and Alabama-Coushatta in Texas. We now hold quarterly calls on our CASTNET sites for possible upgrades or technical issues that may arise that need to be addressed. Help with the data is usually the biggest item on the docket. We, as the operators, need to understand and have the ability to explain the results to their tribal communities effectively. We stay in communication often for support in order to keep relevant with the emission trends and pollutants that will be of concern.

With the data collected from the CASTNET site and my other Meteorological Station housed at the KEO office , I am beginning to put together a study on asthma related issues and ambient air. I am hoping at the end of this study or fiscal year there will be a correlation between the farming activities and asthma issues and actually show which months or weeks are going to be better or worse for those affected by asthma or respiratory issues. Again this study is only for ambient (outdoor) air not including indoor air quality. I will focus on that next fiscal year.

For more information about the CASTNET site please go to https://epa.gov/CASTNET or I am out at the site for weekly collection on Tuesdays around 9:00 AM and will be happy to show off the system. As always you can email me at kickapoo.andrea@gmail.com or call me at (785) 486-2601 x100.



CASTNET Tower

Wet Deposition water collection

Meteorological Station

Kickapoo Environmental Word Finder

A	E	N	O	A	S	T	H	M	A	D	S	O	R
O	K	I	C	K	A	P	O	O	U	C	M	P	L
E	A	G	L	A	T	A	A	D	L	O	M	E	A
P	T	G	A	Y	E	P	R	O	T	O	Z	O	A
S	L	E	H	O	N	E	Y	B	E	E	S	N	T
D	M	E	T	I	T	S	M	C	C	O	A	P	G
N	B	E	O	S	S	O	C	I	B	O	R	E	A
A	I	I	T	O	A	D	E	G	O	B	A	B	M
L	A	E	R	A	C	W	R	H	E	I	B	O	S
T	S	P	A	D	Z	L	M	E	O	E	E	O	S
E	O	E	A	L	S	O	T	Z	G	A	O	U	G
W	W	T	D	S	K	L	A	A	A	N	M	B	A
E	G	U	A	G	M	A	E	R	T	S	A	G	N
T	U	H	S	R	A	M	L	E	A	T	O	I	B

KICKAPOO
CASTNET
ALGAE
AEROBIC
NO ASTHMA
METAZOA
STREAM GAUGE
MARSH
HONEY BEES
WETLANDS
PROTOZOA
BIRDS
BOG
AMOEBA
BIOTA
MOLD

Play this puzzle online at : https://thewordsearch.com/puzzle/749774/

We encourage you to look up the words you do not know. I will personally say that I did not know a few and had to look them up myself :) Happy Wordfinding!!!!!!!!

COMMUNITY GARDEN UPDATE

Please read the article below and consider brining out your leaves to the Community Garden for mulching purposes. This not only protects the ecosystem, it saves money in the long run as we build up our

Don't Bag It – Leaf Management Plan
Vince Mannino, Horticulturist, Jefferson County
Robert Richter, Horticulturist, Montgomery County
Doug Welsh and Sam Cotner, Extension Horticulturists, The Texas A&M University System

During the year, at least 20 percent of the solid waste generated by Texans comes from grass clippings, tree leaves and other landscape wastes. Bagging these materials and placing them into the curbside garbage collection system uses valuable landfill space, removes nutrients from the environment, and costs cities and the people of Texas more in increased taxes and service fees.

Of the landscape waste, approximately half is composed of tree leaves. The "Don't Bag It" Leaf Management Plan is an ecologically sound program designed to significantly reduce the volume of leaves entering community landfills, thereby extending their life and saving tax dollars.

Managing Leaves: The tree leaves that accumulate in and around your landscape represent a valuable natural resource that can be used to provide a good source of organic matter and nutrients for use in your landscape. It is an established fact that the trees in one acre of forest shed as much as two tons of leaves each fall. You may complain, as you lean wearily on a leaf rake, that your neighborhood outdoes any forest, but be thankful. Hang on to your leaves. And if your neighbors don't want them, hang on to theirs. It makes no sense to send valuable treasure to the dump.

In forests, pastures and other natural settings, tree leaves and other organic wastes form a natural carpet over the soil surface which conserves moisture, modifies temperatures and prevents soil erosion and crusting. In time bacteria, fungi and other natural occurring organisms decompose or compost the leaves and other organic material, supplying the existing plants with a natural, slow release form of nutrients. You can, and should, take advantage of this same concept.

Options for Managing and Using Leaves: Leaves are truly a valuable natural resource! They contain 50 to 80 percent of the nutrients a plant extracts from the soil and air during the season. Therefore, leaves should be managed and used rather than bagged and placed at curbside to be picked up and hauled to landfills. There are four basic ways in which leaves can be managed and used in the landscape.

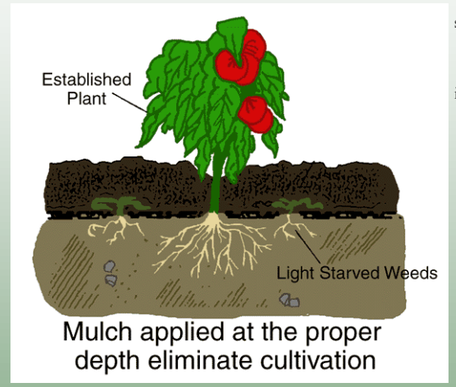
Leaf Management – Mowing
A light covering of leaves can be mowed, simply leaving the shredded leaves in place on the lawn. This technique is most effective when a mulching mower is used. In fact, during times of light leaf drop or if there are only a few small trees in your landscape, this technique is probably the most efficient and easiest way to manage leaf accumulation.

Leaf Management – Mulching
Mulching is a simple and effective way to recycle leaves and improve your landscape. Mulches reduce evaporation from the soil surface, inhibit weed growth, moderates soil temperatures, keep soils from eroding and crusting, and prevent soil compaction. As organic mulches decompose, they release valuable nutrients for use by your landscape plants.
Leaves can be used as a mulch in vegetable gardens, flower beds and around shrubs and trees. As an option to raking, a lawn mower with a bagging attachment provides a fast and easy way to shred and collect the leaves. Leaves that have been mowed or run through some other type of shredder will decompose faster and are much more likely to remain in place than unshredded leaves.

Apply a 3 to 6-inch layer of shredded leaves around the base of trees and shrubs. In annual and perennial flower beds, a 2 to 3-inch mulch of shredded leaves is ideal. For vegetable gardens, a thick layer of leaves placed between the rows function as a mulch and an all-weather walkway that will allow you to work in your garden during wet periods. Mulches are especially beneficial when used around newly established landscape plants, greatly increasing the likelihood of their survival.

Leaf Management – Soil Improvement: Leaves may be collected and worked directly into garden and flower bed soils. A 6 to 8-inch layer of leaves tilled into a heavy, clay soil will improve aeration and drainage. The same amount tilled into a light, sandy soil, will improve water and nutrient holding capacity.
A recommended strategy for using leaves to improve soil in vegetable gardens and annual planting beds is to collect and work them into the soil during the fall. This allows enough time for the leaves to decompose prior to spring planting. Adding a little fertilizer to the soil after working in the leaves will hasten their decomposition.

Leaf Management – Composting
Knowledge of composting dates to the early Greeks and Romans. The Arabs kept the sci-
ence of composting alive during the Dark Ages, and it continued throughout the Renais-
sance. From Shakespeare's Hamlet comes the line "spread the compost on the weeds, to make them ranker!" In America, the value of composting was recognized by George Washington, Thomas Jefferson and George Washington Carver. Today, knowledge and in-
terest in the science of composting is increasing dramatically. Whether an ancient art or a modern science, composting is a useful and environmentally sound gardening practice for you.



WATER QUALITY

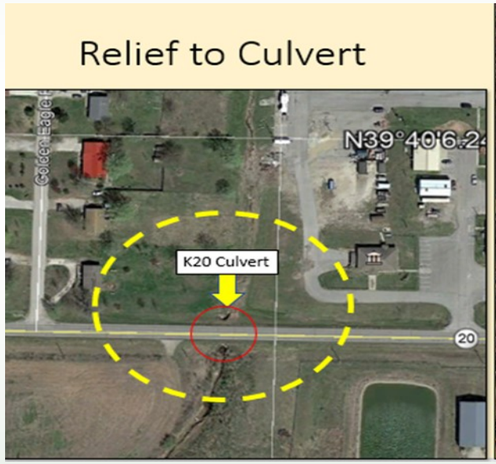
David Hebert— Water Quality

Section 319 CWA

This fall I am working on a project to reduce the excess water in the low valley between Golden Eagle Rd. and the Golden Eagle Casino parking lot. If anyone has been out there, they have probably seen the water that is beginning to form a small pond near K20 highway. I am putting together a grant proposal and using my Clean Water Act 319 funds to implement a professional system designed to allow the water to be absorbed by rain garden and wetland plants or mitigated through alternate means.

Section 106—Clean Water Act (CWA)
I collected water samples from eight sites to include the Delaware River, Plum Creek, Craig Creek and connecting tributaries that eventually flow into the Kickapoo waterworks department dam intake.

The samples are to test for pesticides, VOC's (volatile organic chemicals) turbidity, e-coli and excess nutrients. A report will be coming soon on the sampling and will submit a synopsis in the next issue.



LAGOONS/WATER TREATMENT UPDATE

Jon Nabil Goslin—Lagoons Coordinator

All industry creates waste, even the drinking water industry and as a result, an accumulation of 55-gallon plastic barrels accrues. The Kickapoo Tribal Waterworks generates on average two 55-gallon barrels per month that are used from the chemicals needed to make the tribal drinking water potable and drinkable to use. Edwards Chemicals will accept the 55-gallon barrels that contained Sodium Hypochlorite (bleach) for re-use, but not Aluminum Choro hydrate (aka polymer and is too costly to clean out and reuse for the retailer). As a result, an accumulation of 55-gallon barrels accrues. Chlorine is harmful to plants and fish, but a requirement by the EPA, for public drinking water systems, in order to destroy harmful disease-causing pathogens. It is advantageous for gardeners and fish breeders, to use water that isn't chlorinated. One of the most abundant untapped sources for water, that isn't chlorinated, here on the reservation, literally falls from the sky, Rainwater. The problem with collecting rainwater in any open container, is that mosquitoes and other nuisance insects will use them for breeding. They require standing/stagnate water in order to breed.

This design is a closed system. Nuisance insects cannot infiltrate it in order to breed. A flap-valve diverter is used to connect the water from gutters to fill the barrels. When the barrels are full, they no longer fill, and the normal path is used for water overflow from the gutters. When the barrels are empty the diverter then again collects water to fill the barrels. Elevation is essential in providing pressure at a spigot. PSI (Pounds per square inch) is a measurement of 1 pound of pressure per 2.31 feet of elevation. So, for every 2.31 feet of elevation, 1 PSI is available. With this system, if it is full, a hose can be attached to the spigot and pressure to deliver water at greater distances is available.

The advantages of using this system:

· Non-chlorinated water doesn't destroy beneficial bacteria in the soil, nor does it kill fish.

· Additional cost to dechlorinate water is not required.

· Rainwater is free, so it won't be an additional cost or tax the Water Departments resources.

The costs associated with building these Rainwater Collection/Delivery Systems are:

· Rainwater diverter, PVC Pipe, Barrels, Lumber, Hardware (Nails, screws, brackets, primer, glue, spigot, hose, etc.), Labor.

WETLANDS UPDATE

Jessica Raley—Wetlands Coordinator

As the new Wetlands Program Coordinator, I have finished our 2019 wetland field assessments using the National Wetlands Conditional Assessment methods. I had the privilege of partnering with Norman Ecological Consulting to conduct the assays of 8 local wetlands including the well-known Mascoutah Marsh as a reference. Our field days included collecting water, soil and vegetation samples as well as notation of hydrology indicators and buffer characterization. The water samples (water chemistry, chlorophyll-a, microcystin) and hydrology indicators are essential in measuring hydrological conditions including stressors, disturbances and possible algal blooms. Similarly, the soil collections are utilized to test the health of the soil, whereas vegetation samples will be used to study the structure and quantity of the local plants. Lastly, the buffer characterizations are necessary in order to be able to physically depict the area surrounding the assessment.

These tedious assessments are vital in determining the health of our wetlands and assists us in restoring unhealthy sites. The restoration of these sites is critical considering how important the wetlands are in preventing flooding, improving water quality, providing ecological niches for wildlife, and maintaining the overall health of our ecosystem. Together, we can work as a community to keep our wetlands healthy by simply planting a local tree, picking up litter, and as always, recycle, recycle, recycle!

BROWNFIELDS UPDATE

WHAT IS A BROWNFIELD?
A brownfield is a property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. It is estimated that there are more than 450,000 brownfields in the U.S. Cleaning up and reinvesting in these properties increases local tax bases, facilitates job growth, utilizes existing infrastructure, takes development pressures off of undeveloped, open land, and both improves and protects the environment. (EPA.gov)

Craig Wahwahsuck Sr. Brownfields/Tribal Response

785-486-2601 ext. 104

My name is Craig Wahwahsuck Sr. and I recently joined the Kickapoo Environmental Office (KEO) as the new Brownfields/Tribal Emergency Response. Resident of the Kickapoo Reservation and a Kickapoo Tribal Member. Graduated Atchison High in Atchison, KS in 1993. I have 15 yrs. experience in the environmental field. Have worked for Prairie Band Potawatomi Nation as Supervisor Solid Waste/Wastewater programs and with the Kickapoo Tribe in Kansas. Brownfield sites are abandoned or underused properties where there may be environmental contamination. Redevelopment efforts are often hindered by the liability for the cleanup or the uncertainty of cleanup costs. Brownfield sites that aren't cleaned up represent lost opportunities for economic development and for other community improvements. The previous brownfields employee left the program in good standings and we will continue proceeding forward with the program.